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Cont
- (2) a first cylindrical portion adjacent to the lead-in portion, the first cylindrical portion having a first exterior diameter;
 - (3) a first raised band positioned upon the first cylindrical portion, the first raised band having a diameter greater than the first exterior diameter of the first cylindrical portion; and
 - (4) a second cylindrical portion adjacent to the first cylindrical portion, the second cylindrical portion having a second exterior diameter; and
- c. inserting said pipette tip onto said mandrel such that the first raised band contacts the interior cylindrical wall of the collar portion to form a first seal between the mandrel and the pipette tip.

REMARKS

I. Status of the Application.

Claims 1 through 18 were pending in the original application (the "Present Invention"). In a non-final Office Action dated April 7, 2003 (the "Office Action"), the Examiner: (1) objected to Figure 6 of the original application; (2) rejected Claims 1 through 6 under 35 U.S.C. § 102(b) as being anticipated by Long, U.S. Patent No. 5,200,151 (the "Long reference"), or in the alternative under 35 U.S.C. § 103(a) as being obvious over the Long reference; (3) rejected Claims 7, 8, 13, 16, and 18 under 35 U.S.C. § 102(b) as being anticipated by Franke, et al., U.S. Patent No. 4,084,730 (the "Franke reference"), or in the alternative under 35 U.S.C. § 103(a) as

being obvious over the Franke reference; (4) rejected Claims 7-10 and 13-18 under 35 U.S.C. 103(a) as being obvious by Williams, U.S. Patent No. 4,824,641, in view of the Long reference; and (5) objected to Claims 11 and 12 as being dependent on a rejected base Claim. The Examiner noted that Claims 11 and 12 "would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." Office Action Pg. 4.

In this response, the Applicant: (1) respectfully submits a replacement Figure 6; (2) respectfully submits amendments to Claims 7 and 16; (3) respectfully traverses the rejections of Claims 1 through 6 made under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a); (4) respectfully overcomes the rejections of Claims 7, 8, 13, 16, and 18 made under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a); and (5) respectfully overcomes the rejections of Claims 7-10 and 13-18 under 35 U.S.C. § 103(a). Claims 1 through 18 remain in the application after the amendments. Ample support may be found in the Applicant's specification for the amendments to Claims 7 and 16.

II. Rejection of Claims 1-18 Under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a) Should Be Withdrawn.

A. Claim 1.

1. The Rejection of Claim 1 Under 35 U.S.C. § 102(b) Should Be Withdrawn.

In rejecting the Applicant's Claim 1, the Examiner asserted that all of the elements contained therein were anticipated by the Long reference. The Applicant respectfully submits that the rejection of Claim 1 made under 35 U.S.C. § 102(b) should be withdrawn, as the claim limitation of a first cylindrical portion and a second cylindrical portion, where the second cylindrical portion is adjacent to the first cylindrical portion and where the second cylindrical portion has a second exterior diameter, is not disclosed in the Long reference.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." M.P.E.P. § 2131 (citing Verdegaal Bros. v. Union Oil of California, 814 F.2d 628, 631 (Fed. Cir. 1987)). The Long reference discloses a pipette assembly, including a tip holder (124), a holder stem (72) and a distal port (148). The holder stem (72) has a generally cylindrical shape about a longitudinal central axis of the tip holder (124). A protuberance (166) is formed adjacent to the stem. On the side of the stem opposite the protuberance (166) is a nose (178) that forms an outwardly extending ring (186). The nose also includes a skirt (180) that extends in an inclined fashion relative to the holder axis (164). The Long reference does not disclose several elements of

Applicant's Claim 1. For example, the Long reference does not disclose "a first cylindrical portion adjacent to the lead-in portion, the first cylindrical portion having a first exterior diameter; [and] a second cylindrical portion adjacent to the first cylindrical portion, the second cylindrical portion having a second exterior diameter." Applicant's Claim 1, page 11.

It is respectfully submitted that the Long reference does not disclose all the elements of the Applicant's invention. Accordingly, the Applicant respectfully submits that the Examiner has not established a proper basis for rejection of Claim 1 under 35 U.S.C. §102(b), as the Long reference does not describe every claim limitation of Applicant's Claim 1. Thus, the Applicant respectfully requests that the Examiner's rejection of Claim 1 made under 35 U.S.C. §102(b) be withdrawn.

2. The Alternate Rejection of Claim 1 Under 35 U.S.C. § 103(a) Should Be Withdrawn.

i. The Examiner Has Failed to Make a *Prima Facie* Case of Obviousness.

The Examiner has alternatively rejected Claim 1 under 35 U.S.C. § 103(a) as being obvious over the Long reference. It is respectfully submitted that the Examiner has failed to make a *prima facie* case of obviousness with regard to the Long reference, as the Long reference does not teach all of the elements of the present invention. "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." M.P.E.P. § 2143.03 (citing *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)).

"To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex Parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

In the present case, the Examiner has not shown where the references expressly or impliedly suggest the claimed invention. For example, the Examiner has not cited any portion of the Long reference that expressly or impliedly suggests "a second cylindrical portion adjacent to the first cylindrical portion, the second cylindrical portion having a second exterior diameter" as required by Claim 1. In addition, the Examiner has not presented a convincing line of reasoning as to why the artisan would have found the claimed invention to be obvious in light of the teachings of the Long reference.

As discussed above, the Examiner has failed to make a *prima facie* case of obviousness, as the Examiner has not shown where the Long reference "expressly or impliedly suggests the claimed invention," and the Examiner has not shown a "convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Accordingly, the Examiner's rejection of Claim 1 under 35 U.S.C. § 103(a) as allegedly being obvious over Long should be withdrawn.

**ii. Secondary Considerations are Presented as Evidence Over the
Examiner's Claim of Obviousness.**

Additionally, the Applicant respectfully submits that the low insertion force tip and mandrel combination addresses a long felt need in the art, a need heretofore unmet. "Rebuttal evidence [to a 35 U.S.C. § 103 rejection] may include evidence of 'secondary considerations,' such as 'commercial success, long felt but unsolved needs, [and] failure of others.'" M.P.E.P. § 2144.08 (citing *Graham v. John Deere Co.*, 383 U.S. at 17, 148 USPQ at 467). As explained in the Applicant's specification:

"Because the seals are on the interior wall of the pipette tip and extend inwardly toward the center axis of the pipette tip, the core pin must contact and pull upon the seals before it can be removed from the pipette tip during molding. This contact can damage the seals thus reducing the percentage of pipette tips that pass quality control testing and thereby resulting in increased manufacturing cost for the pipette tips." Applicant's specification, pp. 2-3.

The Examiner has cited the Long reference, the Franke reference, and the Williams reference against one or more of the Applicant's claims. The Long reference was filed May 21, 1990, the Franke reference was filed September 15, 1976, and the Williams reference was filed June 20, 1986. The latest of these three references was filed more than 10 years before the Applicant's filing date of January 18, 2001. If the Applicant's claimed invention were obvious in view of the above stated references, a pipette manufacturer, in the last 10 years, would have been driven by the prospect of lowered manufacturing costs into creating a pipette tip and mandrel combination similar to the Applicant's claimed invention. However, no such combination exists

in the marketplace. The Applicant respectfully submits that the practice of a low insertion force tip and mandrel combination addresses a long felt need in the art, not solved by any of the above references, alone or in combination, to provide pipette tips at low cost by reducing the amount of rejected tips.

As discussed above, secondary considerations are presented as rebuttal evidence of the Examiner's obviousness rejection of Claim 1. The resolution of a problem which has presented a long felt need in the art was not contemplated by the cited art, and has not been implemented in the 10 years since the filing date of the most recent cited art. Accordingly, the Examiner's rejection of Claim 1 under 35 U.S.C. § 103(a) as allegedly being obvious over Long should be withdrawn.

B. Claims 2-6.

The Examiner has rejected Claims 2-6 under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a). "Claims in dependent form shall be construed to include all the limitations of the claim incorporated by reference into the dependent claim." 37 C.F.R. § 1.75.

Each of the Applicant's Claims 2-6 are dependent Claims which depend from independent Claim 1. The Applicant respectfully submits that the Remarks section (II)(A)(1) and (II)(A)(2) hereof shows that independent Claim 1 is not anticipated or made obvious by the Long reference. As a dependent Claim includes all of the limitations of the Claim from which it depends, the Applicant respectfully submits that Claims 2-6 are therefore also not anticipated or made obvious by the Long reference. Accordingly, the Applicant respectfully requests that the

Examiner's rejection of Claims 2-6 under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a) be withdrawn.

C. Claims 7 and 16.

1. The Rejection of Claims 7 and 16 Under 35 U.S.C. § 102(b) Should be Withdrawn.

In rejecting the Applicant's Claims 7 and 16, the Examiner asserted that all of the elements contained therein were anticipated by the Franke reference. With consideration to the amendments made to the Applicant's Claims 7 and 16 as shown in the Amendments section and Exhibit A hereof, the Applicant respectfully submits that the rejection of Claims 7 and 16 made under 35 U.S.C. § 102(b) should be withdrawn, as the claim limitation of a first cylindrical portion and a second cylindrical portion, where the second cylindrical portion is adjacent to the first cylindrical portion and where the second cylindrical portion has a second exterior diameter, is not disclosed in the Franke reference.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." M.P.E.P. § 2131 (citing Verdegaal Bros. v. Union Oil of California, 814 F.2d 628, 631 (Fed. Cir. 1987)). The Franke reference discloses a pipette and a pipette tip, and, as shown in Fig. 3, an extension tip for large volumes of liquid. The extension tip (22) contains a bead (34). The extension tip is pushed into the collar (30), eventually stopping at a flange (32) on the collar. A screw cap (24) is screwed against the collar (30), compressing the bead (34) of the extension tip (22), thereby forming a

tight and secure fit. The Franke reference does not disclose several elements of Applicant's appended Claims 7 and 16. For example, the Franke reference does not disclose "a second cylindrical portion adjacent to the first cylindrical portion, the second cylindrical portion having a second exterior diameter." Applicant's Amended Claims 7 and 16, Exhibit A herein. In particular, as shown in Fig. 3 of the Franke reference, only a single cylindrical portion, in the form of the extension tip (22), is shown having a single bead (34) positioned thereon. A second cylindrical portion having a different exterior diameter from the first cylindrical portion is not disclosed.

As the Franke references has been shown not to disclose all of the elements of the Applicant's invention, the Applicant respectfully requests that the rejection of Claims 7 and 16 made under 35 U.S.C. § 102(b) be withdrawn.

2. The Alternate Rejection of Claims 7 and 16 Under 35 U.S.C. § 103(a)

As Obvious Over the Franke Reference Should be Withdrawn.

i. The Examiner Has Failed to Make a *Prima Facie* Case of Obviousness.

The Examiner has alternatively rejected Claims 7 and 16 under 35 U.S.C. § 103(a) as being obvious over the Franke reference. It is respectfully submitted that the Examiner has failed to make a *prima facie* case of obviousness with regard to the Franke reference, as the Franke reference does not teach all of the elements of the present invention. "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by

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the prior art." M.P.E.P. § 2143.03 (citing *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)). "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex Parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

In the present case, the Examiner has not shown where the references expressly or impliedly suggest the claimed invention. For example, the Examiner has not cited any portion of the Franke reference that expressly or impliedly suggests "a second cylindrical portion adjacent to the first cylindrical portion, the second cylindrical portion having a second exterior diameter" as required by amended Claims 7 and 16. In addition, the Examiner has not presented a convincing line of reasoning as to why the artisan would have found the claimed invention to be obvious in light of the teachings of the references.

As discussed above, the Examiner has failed to make a *prima facie* case of obviousness, as the Examiner has not shown where the Franke reference "expressly or impliedly suggests the claimed invention," and the Examiner has not shown a "convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Accordingly, the Examiner's rejection of Claims 7 and 16 under 35 U.S.C. § 103(a) as allegedly being obvious over Franke should be withdrawn.

ii. Secondary Considerations are Presented as Evidence Over the Examiner's Claim of Obviousness.

Additionally, the Applicant respectfully submits that the low insertion force tip and mandrel combination addresses a long felt need in the art, a need heretofore unmet. "Rebuttal evidence [to a 35 U.S.C. § 103 rejection] may include evidence of 'secondary considerations,' such as 'commercial success, long felt but unsolved needs, [and] failure of others.'" M.P.E.P. § 2144.08 (citing *Graham v. John Deere Co.*, 383 U.S. at 17, 148 USPQ at 467). As explained in the Applicant's specification:

"Because the seals are on the interior wall of the pipette tip and extend inwardly toward the center axis of the pipette tip, the core pin must contact and pull upon the seals before it can be removed from the pipette tip during molding. This contact can damage the seals thus reducing the percentage of pipette tips that pass quality control testing and thereby resulting in increased manufacturing cost for the pipette tips." Applicant's specification, pp. 2-3.

The Examiner has cited the Long reference, the Franke reference, and the Williams reference against one or more of the Applicant's claims. The Long reference was filed May 21, 1990, the Franke reference was filed September 15, 1976, and the Williams reference was filed June 20, 1986. The latest of these three references was filed more than 10 years before the Applicant's filing date of January 18, 2001. If the Applicant's claimed invention were obvious in view of the above stated references, a pipette manufacturer, in the last 10 years, would have been driven by the prospect of lowered manufacturing costs into creating a pipette tip and mandrel combination similar to the Applicant's claimed invention. However, no such combination exists in the marketplace. The Applicant respectfully submits that the practice of a low insertion force

tip and mandrel combination addresses a long felt need in the art, not solved by any of the above references, alone or in combination, to provide pipette tips at low cost by reducing the amount of rejected tips.

As discussed above, secondary considerations are presented as rebuttal evidence of the Examiner's obviousness rejection of Claim 1. The resolution of a problem which has presented a long felt need in the art was not contemplated by the cited art, and has not been implemented in the 10 years since the filing date of the most recent cited art. Accordingly, the Examiner's rejection of Claims 7 and 16 under 35 U.S.C. § 103(a) as allegedly being obvious over Franke should be withdrawn.

3. The Rejection of Claims 7 and 16 Under 35 U.S.C. § 103(a) as Obvious Over the Williams Reference in View of the Long Reference Should be Withdrawn.

i. The Examiner Has Failed to Make a *Prima Facie* Case of Obviousness.

The Examiner has further rejected Claims 7 and 16 under 35 U.S.C. § 103(a) as being unpatentable over the Williams reference in view of the Long reference. With consideration to the amendments made to the Applicant's Claims 7 and 16 as shown in the Amendments section and Exhibit A hereof, Applicant respectfully submits that the rejection of Claims 7 and 16 made under 35 U.S.C. § 103(a) should be withdrawn. The rejection should be withdrawn, as the claim limitation of a first cylindrical portion and a second cylindrical portion, where the second

cylindrical portion is adjacent to the first cylindrical portion and where the second cylindrical portion has a second exterior diameter, is explicitly disclosed in neither the Williams nor the Long references. Further, it is respectfully submitted that a suggestion to combine the two references is not made in either of the references, and therefore the Examiner's conjecture of a *prima facie* case of obviousness is not supported by the disclosures made in the references.

In order to "prevent the use of hindsight based on the invention," the Examiner must show a motivation to combine the references that creates the case for obviousness. *In re Rouffet*, 149 F.3d 1350 (Fed. Cir. 1998). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990). Furthermore, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. See *In re Kotzab*, 217 F.3d 1365 (Fed. Cir. 2000). Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant. *Id.* at 1369. In addition, the Examiner can not provide mere conclusive statements regarding motivations to combine, but must explain the motivation to combine references with "reasonable specificity." See MPEP § 2142.

The Examiner notes that "it would have been obvious to use Long's multi-band mounted mandrel in place of William's band mounded [sic] tip because Long teaches tat [sic] mandrel's [sic] may readily carry bands to provide for sealing of a tip to the assembly." Office Action, page 4. With reference to Figure 7 of the Williams reference, a "stepped" collar and a similarly

formed pipette are disclosed, with a guide ring and a seal ring formed on the pipette. In contrast, the Applicant, in amended Claims 7 and 16, discloses "a second cylindrical portion adjacent to the first cylindrical portion, the second cylindrical portion having a second exterior diameter," and "a first raised band positioned upon the first cylindrical portion, the first raised band having a diameter greater than the first exterior diameter of the first cylindrical portion." The combination of a mandrel with a first cylindrical portion and a second cylindrical portion, (where the two portions may have dissimilar exterior diameters, is therefore not disclosed in the Williams reference. Further, the Williams reference does not contemplate placing one or more bands on the mandrel. Several embodiments of the pipette/tip combination are disclosed (see Figs. 6A, 7 and 8), where the bands on the tip are used partly as a sealing mechanism, and partly as a guiding mechanism for the pipette. Having disclosed several embodiments of the pipette/tip combination, all locating the bands on the tip, no motivation, suggestion, or teaching is given to move the bands to the pipette. Indeed, suggestion is made for the placement of the bands in the tip: "because of the elongated length of the tip 22A, it is possible for it to be skewed when it is attached to the pipette. This can be corrected for or in substantial part eliminated by providing alignment means inside the collar between the seal and the mouth of the collar." Williams reference, col. 7, ll. 48-53.

With reference to Figures 3 and 5 of the Long reference, there is disclosed a stem having a generally cylindrical shape, with a protuberance formed adjacent to the stem. In contrast to the present invention, and as discussed more fully in section (II)(A)(i) above, the Long reference does not disclose "a second cylindrical portion adjacent to the first cylindrical portion, the second

cylindrical portion having a second exterior diameter," as is disclosed in the Applicant's amended Claims 7 and 16. Further, the Long reference makes no suggestion, motivation, or teaching to create a stem having two cylindrical portions, where the two cylindrical portions may have dissimilar exterior diameters.

As discussed above, the Examiner has failed to make a *prima facie* case of obviousness, as the Examiner has not shown sufficient suggestion, motivation, or teaching inherent in either the Williams reference or the Long reference to combine the two. Accordingly, the Examiner's rejection of the claims under 35 U.S.C. § 103(a) as allegedly being obvious over Williams in view of Long should be withdrawn.

Because neither Williams nor Long, alone or in combination, disclose all elements of applicant's invention as claimed in independent Claims 7 and 16, it is respectfully submitted that a *prima facie* case of obviousness has not been demonstrated, and therefore the improper rejection of Claims 7 and 16 under 35 U.S.C. § 103(a) should be withdrawn.

**ii. Secondary Considerations are Presented as Evidence Over the
Examiner's Claim of Obviousness.**

Additionally, the Applicant respectfully submits that the low insertion force tip and mandrel combination addresses a long felt need in the art, a need heretofore unmet. "Rebuttal evidence [to a 35 U.S.C. § 103 rejection] may include evidence of 'secondary considerations,' such as 'commercial success, long felt but unsolved needs, [and] failure of others.'" M.P.E.P. §

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2144.08 (citing *Graham v. John Deere Co.*, 383 U.S. at 17, 148 USPQ at 467). As explained in the Applicant's specification:

"Because the seals are on the interior wall of the pipette tip and extend inwardly toward the center axis of the pipette tip, the core pin must contact and pull upon the seals before it can be removed from the pipette tip during molding. This contact can damage the seals thus reducing the percentage of pipette tips that pass quality control testing and thereby resulting in increased manufacturing cost for the pipette tips." Applicant's specification, pp. 2-3.

The Examiner has cited the Long reference, the Franke reference, and the Williams reference against one or more of the Applicant's claims. The Long reference was filed May 21, 1990, the Franke reference was filed September 15, 1976, and the Williams reference was filed June 20, 1986. The latest of these three references was filed more than 10 years before the Applicant's filing date of January 18, 2001. If the Applicant's claimed invention were obvious in view of the above stated references, a pipette manufacturer, in the last 10 years, would have been driven by the prospect of lowered manufacturing costs into creating a pipette tip and mandrel combination similar to the Applicant's claimed invention. However, no such combination exists in the marketplace. The Applicant respectfully submits that the practice of a low insertion force tip and mandrel combination addresses a long felt need in the art, not solved by any of the above references, alone or in combination, to provide pipette tips at low cost by reducing the amount of rejected tips.

As discussed above, secondary considerations are presented as rebuttal evidence of the Examiner's obviousness rejection of Claim 1. The resolution of a problem which has presented a long felt need in the art was not contemplated by the cited art, and has not been implemented in

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the 10 years since the filing date of the most recent cited art. Accordingly, the Examiner's rejection of Claim 7 and 16 under 35 U.S.C. § 103(a) as allegedly being obvious over Williams in view of Long should be withdrawn.

D. Claims 8-10, 13-15, 17, and 18.

The Examiner has rejected Claims 8-10, 13-15, 17, and 18 under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a). "Claims in dependent form shall be construed to include all the limitations of the claim incorporated by reference into the dependent claim." 37 C.F.R. § 1.75.

The Applicant's Claims 8-10 and 13-15 depend from independent Claim 7, and Claims 17 and 18 depend from independent Claim 16. The Applicant respectfully submits that the Remarks section (II)(C)(1), (II)(C)(2), and (II)(C)(3) hereof shows that independent Claims 7 and 16 are not anticipated or made obvious by the Franke reference or the Williams reference in view of the Long reference. As a dependent Claim includes all of the limitations of the Claim from which it depends, the Applicant respectfully submits that Claims 8-10, 13-15, 17, and 18 are therefore also not anticipated or made obvious by the references. Accordingly, the Applicant respectfully requests that the Examiner's rejection of Claims 8-10, 13-15, 17, and 18 under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a) be withdrawn.

III. Co-pending Patent Cooperation Treaty Application.

The Applicant respectfully submits that a co-pending Patent Cooperation Treaty application has been filed for this invention. The Serial number for the application is

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PCT/US01/49848. An International Preliminary Examination Report ("IPER"), a copy of which is enclosed, has been filed by the European Patent Office, in which the Long and Williams references are considered, and all of the claims of the PCT application are found to be "considered as novel and inventive." IPER for PCT/US01/49848.

IV. Petition for Extension of Time Under 37 C.F.R. § 1.136(a).

The shortened statutory period for reply to the April 7, 2003 Office Action expired on July 7, 2003. Enclosed is a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) to extend the period for filing a reply to the Office Action for one month until August 7, 2003. Also enclosed is a check in the amount of \$110.00 to pay the fee for the Petition for Extension of Time.

CONCLUSION

For all the foregoing reasons, it is respectfully submitted that the Applicant has made a patentable contribution to the art and that this response places the above identified application in condition for allowance, or in the alternative this response places the application in a better form for appeal. Favorable reconsideration and allowance of this application is respectfully requested. Should the Examiner continue to find any of the Claims objectionable for any reason, the Examiner is respectfully requested to contact the undersigned for a telephone interview before taking further action.

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In the event the Applicant has inadvertently overlooked the need for an extension of time or payment of an additional fee, the Applicant conditionally petitions therefor, and authorizes any fee deficiency to be charged to deposit account 09-0007.

Sincerely,

ICE MILLER

Russ Fowler

Russell E. Fowler, II
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One American Square, Box 82001
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Date: 7-31-03

REF/pgf

Enclosures: Exhibit A – Marked-up Amended Claims 7 and 16 under 37 C.F.R.
§ 1.121(c)(1)(ii)
Exhibit B – Replacement Drawing Sheet Containing Figures 3, 5,
and 6, with Modifications to Figure 6
Copy of IPER
Petition for Extension of Time Under 37 C.F.R. § 1.136(a)
Check in the amount of \$110.00 for Petition for Extension of Time
Return Postcard

cc: Mr. D. David Hill
Mr. David W. Bell

Exhibit A – Marked-up Amended Claims 7 and 16 Under 37 C.F.R. § 1.121(c)(1)(ii)

7. A pipette assembly comprising:
 - a. a pipette tip including a collar portion and an adjacent conical head, the conical head for receiving or expelling fluids from the tip, the collar portion including an interior cylindrical wall having a first interior diameter;
 - b. a hollow mandrel having a proximate end and a distal end, the mandrel comprising:
 - (1) a lead-in portion formed on the distal end of the mandrel;
 - (2) a first cylindrical portion adjacent to the lead-in portion, the first cylindrical portion having a first exterior diameter;
 - (3) a first raised band positioned upon the first cylindrical portion, the first raised band having a diameter greater than the first exterior diameter of the first cylindrical portion, the first raised band contacting the interior cylindrical wall of the collar portion to form a first seal between the mandrel and the pipette tip[.] ; **and**
 - (4) a second cylindrical portion adjacent to the first cylindrical portion, the second cylindrical portion having a second exterior diameter.**
16. A method for connecting a pipette mandrel to a pipette tip comprising:
 - a. providing a pipette tip comprising a collar portion and an adjacent conical head, the conical head for receiving or expelling fluids from the tip, the collar portion including an interior cylindrical wall having a first interior diameter;

- b. providing a hollow mandrel having a proximate end and a distal end, the mandrel comprising:
- (1) a lead-in portion formed on the distal end of the mandrel;
 - (2) a first cylindrical portion adjacent to the lead-in portion, the first cylindrical portion having a first exterior diameter;
 - (3) a first raised band positioned upon the first cylindrical portion, the first raised band having a diameter greater than the first exterior diameter of the first cylindrical portion; **and**
 - (4) **a second cylindrical portion adjacent to the first cylindrical portion, the second cylindrical portion having a second exterior diameter; and**
- c. inserting said pipette tip onto said mandrel such that the first raised band contacts the interior cylindrical wall of the collar portion to form a first seal between the mandrel and the pipette tip.

PATENT COOPERATION TREATY

EINGEGANGEN

20. Mai 2003

Erl.....

PCT

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

Rutetzki, Andreas
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ALLEMAGNE

COMMUNICATION IN CASES FOR WHICH
NO OTHER FORM IS APPLICABLE

By fax in advance!

18 p.

fax: +49 89 450 63 450

Date of mailing
(day/month/year)

20-05-2003

Applicant's or agent's file reference

2047-179 ZRBEC 014

REPLY DUE

See paragraph 1 below

International application No.

PCT/US 01/49848

International filing date (day/month/year)

19/12/2001

Applicant

BECKMAN COULTER, INC.

1. ☐ REPLY DUE within _____, months/days from the above date of mailing



NO REPLY DUE

2. COMMUNICATION:

Herewith I am sending you per fax the IPER of this PCT application.
We had sent the IPER to the previous representative, so this is the reason
you hadn't received it yet. We have now corrected this in the file.
Our apologies for this inconvenience.
Kind regards,

Name and mailing address of the IPEA/



European Patent Office, P.B. 5818 Patendaan 2
NL-2280 HV Rijswijk - Netherlands
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Authorized officer

SMITS A M



Form PCT/IPEA/424 (January 1994)

(19/05/2003)

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AUSDRUCKSZEIT 20.MAI. 13:34

Filed: 19.05.2003

PATENT (PEA/429) TION TREATY

01989250-US0149848

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

May, William H.
BECKMAN COULTER, INC.
4300 N. Harbor Blvd. P.O. Box 3100
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ETATS-UNIS D'AMERIQUE

PCT



NOTIFICATION CONCERNING INFORMAL
COMMUNICATIONS WITH THE APPLICANT

(PCT Rule 66.6)

	Date of mailing (day/month/year) 23.04.2003
Applicant's or agent's file reference 2047-179	TRANSMITTAL FOR INFORMATION
International application no. PCT/US01/49848	International filing date (day/month/year) 19/12/2001
Applicant BECKMAN COULTER, INC.	

An informal communication took place on 10/04/2003, between the International Preliminary Examining Authority and the applicant / the agent.

A copy of the note on that communication (Form PCT/IPEA/428) is herewith transmitted for your information.

Name and mailing address of the international preliminary examining authority  European Patent Office - P.B. 5818 Patentaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 851 epo nl Fax: +31 70 340 - 3018	Authorized officer Smits, A  Telephone No. +31 70 340-3698
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Form PCT/IPEA/429 (july 1993)

EMPFANGSZEIT 20.MAI. 13:27

AUSDRUCKSZEIT 20.MAI. 13:34

23.04.2003

Printed: 19.05.2003 über die Internationale Z. IPEA428 Welt auf dem Gebiet d. 01989250-1/80149848
Patent Cooperation Treaty
Traité de coopération en matière de brevets

PCT

Application No.:

PCT/US01/49848

Note on an Informal communication by telephone with the Applicant

A copy of this note is being sent to the Applicant for information

Participants

Applicant: Beckman Coulter, Inc.

Agent: Müller-Boré & Partner, Carsten Rocke

Examiner(s): Wyplosz, N

Summary of the communication

The applicant requested in a letter dated March 17, 2003 to perform a detailed substantive preliminary examination. To expedite the procedure the applicant was informed over the telephone of the following:

In his letter dated March 17, 2003 the applicant made the following remarks concerning the documents cited in the International Search Report:

The device described in the application differs from the prior art by the fact that the first cylindrical portion (42) and the second cylindrical portion (44) have different exterior diameters, which is not the case in the documents cited in the International Search Report.

This opinion is considered correct and finds support in the description p.7 lines 16 and 17 which specifies that "the second cylindrical portion [...] has a larger diameter than the first cylindrical portion".

However, as currently drafted, claim 1 does not exclude a device with a first and second cylindrical portions of identical diameters.

The applicant has accepted to file new claims which take account of the above comments within a time delay of 7 days.

über die internationale Zusammenarbeit auf dem Gebiet der
Patent Cooperation Treaty
Traité de coopération en matière de brevets

PCT

Application No.:

PCT/US01/49848

10/04/2003

Date (day / month / year)



Wyplosz, N

Authorized officer of IPEA

PATENT COOPERATION TREATY

PCT/US01/49848

PCT/US01/49848

PCT/US01/49848

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

The International Bureau of WIPO
34, chemin des Colombettes
CH - 1211 Geneva 20
Switzerland

PCT

NOTIFICATION CONCERNING
DOCUMENTS TRANSMITTED

Date of mailing
(day/month/year)

23.04.2003

International application No: PCT/US01/49848

This International Preliminary Examining Authority transmits herewith the following documents:

1. ☐ demand (Rule 61.1(a)).
2. ☒ copy of the international preliminary examination report and its annexes (Rule 71.1).
3. ☐ _____ other documents (*specify*):

Name and mailing address of the IPEA/

European Patent Office - P.B. 5018 Patentaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl
Fax: +31 70 340 - 3016

Authorized officer

Smits, A

Tel. +31 70 340-3596



Form EMPFANGSZEIT 20. MAI. 13:27

AUSDRUCKSZEIT 20. MAI. 13:34

23-04-2003

Printed 19.05.2003

PEA 40941


01989250-US0149848

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2047-179		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/US01/49848	International filing date (day/month/year) 19/12/2001	Priority date (day/month/year) 18/01/2001	
International Patent Classification (IPC) or national classification and IPC B01L3/02			
Applicant BECKMAN COULTER, INC.			
<p>1. This International preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 4 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application 			
Date of submission of the demand 22/07/2002		Date of completion of this report 23.04.2003	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3018		Authorized officer Wyplosz, N Telephone No. +31 70 340 2573	



Printed: 19-05-2003

19-05-2003

19-05-2003

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US01/49848

1. Basis of the report

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

Description, pages:

1-14 as originally filed

Claims, No.:

3-14 as received on 19/03/2003 with letter of 17/03/2003

1,2 with telefax of 11/04/2003

Drawings, sheets:

1/3-3/3 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

Filed: 19-05-2003

PCT/US01/49848

01989250-US01/49848

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US01/49848

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims 1-14
	No:	Claims
Inventive step (IS)	Yes:	Claims 1-14
	No:	Claims
Industrial applicability (IA)	Yes:	Claims 1-14
	No:	Claims

- 2. Citations and explanations**
see separate sheet

2003-04-20

RECEIVED

01999250-US0149848

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US01/49848

Re Item V**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following document:

D1: US-A-5 200 151 (LONG ERNEST W) 6 April 1993 (1993-04-06)

The combination of the features of independent claim 1 is neither known from, nor rendered obvious by the available prior art.

Document D1 is currently considered to represent the most relevant state of the art.

The subject-matter of claim 1 differs from D1 by the fact that the pipette mandrel comprises a first cylindrical portion and a second cylindrical portion wherein the second cylindrical portion has a larger diameter than the first cylindrical portion.

This technical feature is considered to be inventive because it gives a solution to problems of incorrect introduction and improper sealing of the pipette tip.

None of the other documents teaches nor suggests this solution.

Claim 7 relates to a pipette assembly comprising a pipette mandrel according to claim 1 and claim 13 relates to a method for connecting a pipette mandrel according to claim 1. These claims are therefore also considered as novel and inventive.

Claims 2-6, 8-12 and 14 relate to particular embodiments of the devices and method according to claims 1, 7 and 13 and are also considered as novel and inventive.

Consequently the subject-matter of claims 1-14 satisfies the requirements of Article 33 PCT.

PATENT COOPERATION TREATY
TREATY

Printed: 19-05-2003

01989250-15017-92

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

May, William H.
BECKMAN COULTER, INC.
4300 N. Harbor Blvd. P.O. Box 3100
Fullerton, CA 92834-3100
ETATS-UNIS D'AMERIQUE

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing
(day/month/year) 23.04.2003

Applicant's or agent's file reference
2047-179

IMPORTANT NOTIFICATION

International application No.
PCT/US01/49848

International filing date (day/month/year)
19/12/2001

Priority date (day/month/year)
18/01/2001

Applicant
BECKMAN COULTER, INC.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER


The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

For the purpose of deciding whether the claimed invention is patentable or not, the elected Offices may apply criteria additional to or different from the criteria on which the international preliminary examination report is based (see Articles 27(5), 33(5)). Additional criteria may include e.g. exemptions from patentability and the requirements of enabling disclosure and of clarity and support of claims.

Name and mailing address of the IPEA

 European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 851 epo nl
Fax: +31 70 340 - 3016

Authorized officer

Smits, A

Tel. +31 70 340-3588



Printed: 19-05-2003

PCT/US01/49848



PCT/US01/49848

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2047-179		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US01/49848	International filing date (day/month/year) 19/12/2001	Priority date (day/month/year) 18/01/2001	
International Patent Classification (IPC) or national classification and IPC B01L3/02			
Applicant BECKMAN COULTER, INC.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.15 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 4 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application 			
Date of submission of the demand 22/07/2002		Date of completion of this report 23.04.2003	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.O. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized officer Wyplosz, N Telephone No. +31 70 340 2573 	

Printed: 18-05-2003

PCT/US01/49848

PCT/US01/49848

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US01/49848

I. Basis of the report

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-14 as originally filed

Claims, No.:

3-14	as received on	19/03/2003	with letter of	17/03/2003
1,2	with telefax of	11/04/2003		

Drawings, sheets:

1/3-3/3 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

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- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

Printed: 19-05-2003

PCT/US01/49848

Printed: 19-05-2003

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**International application No. **PCT/US01/49848**

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:
5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):
- (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement****1. Statement**

Novelty (N)	Yes:	Claims 1-14
	No:	Claims
Inventive step (IS)	Yes:	Claims 1-14
	No:	Claims
Industrial applicability (IA)	Yes:	Claims 1-14
	No:	Claims

**2. Citations and explanations
see separate sheet**

Printed on 05-2003

PCT/US-01/49848

05-05-2003 12:36

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US01/49848

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following document:

D1: US-A-5 200 151 (LONG ERNEST W) 6 April 1993 (1993-04-06)

The combination of the features of independent claim 1 is neither known from, nor rendered obvious by the available prior art.

Document D1 is currently considered to represent the most relevant state of the art.

The subject-matter of claim 1 differs from D1 by the fact that the pipette mandrel comprises a first cylindrical portion and a second cylindrical portion wherein the second cylindrical portion has a larger diameter than the first cylindrical portion.

This technical feature is considered to be inventive because it gives a solution to problems of incorrect introduction and improper sealing of the pipette tip.

None of the other documents teaches nor suggests this solution.

Claim 7 relates to a pipette assembly comprising a pipette mandrel according to claim 1 and claim 13 relates to a method for connecting a pipette mandrel according to claim 1. These claims are therefore also considered as novel and inventive.

Claims 2-6, 8-12 and 14 relate to particular embodiments of the devices and method according to claims 1, 7 and 13 and are also considered as novel and inventive.

Consequently the subject-matter of claims 1-14 satisfies the requirements of Article 33 PCT.

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11. APR. 2003 11:07

MUELLER-BORÉ & PARTNER

IPEA 209 AMENDED

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PCT/US01/48848
 Div ref.: 288EC014-ru
 April 11, 2003

NR. 568 S. 1/3
Müller-Boré & Partner
 Patentanwälte • Rechtsanwälte
 Gräfinger Straße 2 • D-81671 München

CLAIMS

1. A pipette mandrel (30) for engagement with the interior wall of a pipette tip (12), the pipette mandrel (30) comprising:

- a. an elongated hollow structure, the hollow structure including a proximate end (33) and a distal end (31);
- b. a lead-in portion (38) formed on the distal end (31) of the hollow structure;
- c. a first cylindrical portion (42) adjacent to the lead-in portion (38), the first cylindrical portion (42) having a first exterior diameter;
- d. a first raised band (40) positioned upon the first cylindrical portion (42), the first raised band (40) having a diameter greater than the first exterior diameter of the first cylindrical portion (42), the first raised band (40) for contacting an interior wall of the pipette tip (12) to form a first seal between the first raised band (40) and the pipette tip (12); and
- e. a second cylindrical portion (44) adjacent to the first cylindrical portion (44), the second cylindrical portion having a second exterior diameter; and
- f. wherein the second cylindrical portion (44) has a larger diameter than the first cylindrical portion (42).

2. The pipette mandrel of claim 1 wherein the first raised band (40) is adjacent to the lead-in portion (38) such that the lead-in portion (38) tapers into the first raised band (40).

-15-

AMENDED SHEET
 IPEA/EP

Printed: 9-05-2003

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3. The pipette mandrel of claim 1 or 2 further comprising a second raised band (46) positioned upon the second cylindrical portion (44), the second raised band (46) having a diameter greater than the second exterior diameter of the second cylindrical portion (44).

5

4. The pipette mandrel of claim 3 wherein the second raised band (46) contacts the interior wall of the pipette tip (12) to form a second seal between the second raised band (46) and the pipette tip (12).

10 5. The pipette mandrel of claim 4 further comprising a taper between the first and second cylindrical portions (42, 44).

6. The pipette mandrel of claim 5 wherein the second raised band (46) is positioned on the end of the second cylindrical portion (44) substantially adjacent
15 to the taper.

7. A pipette assembly comprising:

- 20 a. a pipette tip (12) including a collar portion (16) and an adjacent conical head (14), the conical head (14) for receiving or expelling fluids from the pipette tip (12), the collar portion (16) including an interior cylindrical wall having a first interior diameter; and
- b. a pipette mandrel (30) according to one of claims 1 to 6, whereby the first raised band (40) contacting the interior cylindrical wall of the collar portion (16) to form the first seal between the
25 mandrel (30) and the pipette tip (12).

Patented 05-2003

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8. The pipette assembly of claim 7 wherein the interior cylindrical wall of the collar portion (16) of the pipette tip (12) comprises a first step portion (24) defining the first interior diameter and the collar portion (18) of the pipette tip (12) further
5 comprises a second step portion (22) defining a second interior diameter.

9. The pipette assembly of claim 8 wherein the interior cylindrical wall of the pipette tip (12) further comprises a positive stop (26).

10. The pipette assembly of claim 9 wherein a flange between the collar portion (16) and conical head (14) is the positive stop (26).

11. The pipette assembly of claim 9 wherein a puller ring (29) on the interior wall of the pipette tip (12) is the positive stop (26).

15

12. The pipette assembly of claim 11 wherein the collar portion (16) of the pipette (12) tip further comprises vertical ribs (17) positioned on the exterior of the collar portion (16) of the pipette tip (12).

13. A method for connecting a pipette mandrel (30) to a pipette tip (12) comprising:

- a. providing a pipette tip (12) comprising a collar portion (16) and an adjacent conical head (14), the conical head (14) for receiving or expelling fluids from the pipette tip (12), the collar portion (14) including an interior cylindrical wall having a first interior diameter;

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- b. providing a pipette mandrel (30) according to one of claims 1 to 6; and
- c. inserting said pipette tip (12) onto said mandrel (30) such that the first raised band (40) contacts the interior cylindrical wall of the collar portion (16) to form a first seal between the mandrel (30) and the pipette tip (12).

5

14. The method of claim 13 comprising the step of removing the pipette tip (12) from the mandrel (30) such that the first raised band (40) disengages the interior cylindrical wall of the collar portion (16).

10